

What is claimed is:

1. A system for measuring erythema, comprising:
 - a. a light guide having first and second opposite ends;
 - b. a waveform generator for generating at least first and second signals, and modulating said first and second signals at first and second predetermined frequencies, respectively;
 - c. a light source electrically interconnected to said waveform generator for transmitting light to a surface at said first and second frequencies;
 - d. a photo transistor mounted in said light guide at said second end for receiving reflected light and generating a second signal;
 - e. a calculator circuit for determining a level of erythema based on said second signal; and
 - f. a display unit electrically interconnected to said calculator circuit for displaying said level of erythema.

- 1 2. An erythema measuring device, comprising:
- 2 a. a waveform generator for generating first and second waveforms;
- 3 b. a light guide interconnected to said waveform generator for guiding and
- 4 transmitting light to a surface at first and second frequencies
- 5 corresponding to said first and second waveforms, respectively;
- 6 c. a photo transistor connected to said light guide for receiving light reflected
- 7 from said surface;
- 8 d. an electronic highpass filter for filtering said reflected light received by
- said photo transistor;
- e. an analog to digital converter electrically coupled to said filter; and
- f. a display unit electrically coupled to said analog to digital converter.
3. A method for measuring erythema present on a surface, comprising the steps of:
- a. transmitting first and second wavelengths of light towards said surface;
- 3 b. receiving said first and second wavelengths of light after they have been
- 4 reflected off of said surface;
- 5 c. electronically filtering said first and second wavelengths of reflected light;
- 6 d. calculating a level of erythema based on said filtered first and second
- 7 wavelengths of light; and
- 8 e. displaying said level of erythema.

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- 1 4. An erythema measuring device, comprising:
 - 2 a. means for generating first and second waveforms;
 - 3 b. means for transmitting light to a surface at first and second frequencies
 - 4 corresponding to said first and second waveforms, respectively;
 - 5 c. means for receiving light reflected from said surface;
 - 6 d. means for filtering said reflected light received by said light receiving
 - 7 means;
 - 8 e. an analog to digital converter electrically coupled to said filtering means;
 - 9 and
 - 10 f. a display unit electrically coupled to said analog to digital converter.

5. An erythema measuring device, comprising:
 - a. means for generating first and second waveforms and modulating said first
 - and second waveforms at first and second predetermined frequencies,
 - respectively;
 - b. means for transmitting light to a surface at said first and second
 - frequencies ;
 - c. means for receiving light reflected from said surface;
 - d. means for calculating a level of erythema based on said light reflected
 - from said surface; and
 - e. a display unit for displaying said level of erythema.

- 1 6. A method for measuring erythema present on a surface, comprising the steps of:
- 2 a. generating first and second wavelengths and modulating them at first and
- 3 second frequencies, respectively;
- 4 b. transmitting said first and second wavelengths of light towards said
- 5 surface;
- 6 c. receiving said first and second wavelengths of light after they have been
- 7 reflected off of said surface;
- d. calculating a level of erythema based on said reflected first and second
- wavelengths of light; and
- e. displaying said level of erythema.